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Non-Equilibrium Phase Transitions in the Baxter Model BASAK RENKLIOGLU, M. CEMAL YALABIK, Department of Physics, Bilkent University — The Baxter model in equilibrium is an exactly solved model for which the universality of the static critical phenomena does not hold [1]. The free energy has a branch-point singularity at a phase transition. The exponent of this singularity can range continuously from one to infinity. That is to say, this model has non-universal equilibrium critical exponents [2]. In our study, the non-equilibrium critical dynamics of the Baxter model which is in contact with two thermal baths is analyzed. Monte Carlo methods are applied to the system in which one of the bath is fixed at infinite temperature. The Baxter model is formulated as two interlacing spin-1/2 Ising models on a square lattice, interacting through a four spin coupling. The dynamics of the system is taken to be driven by "spin exchanges" of the neighbor spins in each lattice. We focus on the phase transitions of the system under this spin exchange dynamics. Preliminary results on the universality class properties of the non equilibrium phase transitions is presented.

[1] R.J. Baxter, Phys. Rev. Lett., **26**, 14 (1971).
[2] R.J. Baxter, J. Stat. Phys., **8**, 25 (1973).

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